DETAILED RESPONSE TO OFFICE ACTION

We are very grateful to the examiner for the constructive comments/instructions with regard to the 1st amended application. We have addressed all comments of the examiner in this 2nd amended application, and amended the application according to the examiner's instructions. Amended or rewritten portions have been printed as underlined in the marked-up version of the 2nd amended application. Below we detail how we have amended the application.

Re: Claim Rejections – 35 USC 112

1. We have amended Claim 20 to make the claim definite. The main claim here is an apparatus that can image the activation patterns within the *three dimension volume of the heart.* There is no such apparatus existing prior to the present invention, that can achieve this goal.

We have also amended the "the system" in line 5 and 6, by "the heart, which comprises a three dimension distribution of current dipoles or monopoles or electric potentials, or a computer heart model incorporating physiological a priori information that simulates the physiological and pathophysiological processes of the heart" which provides a definite description and supported by antecedent basis as described in the body of the application.

Claim 20 now reads as follows (with amended portions being printed underlined):

"An apparatus for imaging of electrical activities of a heart within a body, comprising a plurality of sensors for detecting signals over a part of a surface of the body, a part of the surface of the heart within the body, or a part of a surface out of the body, means for collecting the detected signals, means for determining positions

of the sensors, means for determining geometry information of the heart within the body and of the torso, means for constructing an electrical source model of the heart, which comprises a three dimension distribution of current dipoles or monopoles or electric potentials, or a computer heart model incorporating physiological a priori information that simulates the physiological and pathophysiological processes of the heart, means for estimating activation patterns within the three dimension volume of the heart, by comparing and minimizing the difference between the detected signals and source model generated signals over the same sensor positions over a certain time epoch, and means for displaying the estimated activation patterns within the three dimension volume of the heart."

Re: Claim Objections

2. Claim 19, line 3: "part of a surface of the body" has been changed to "a part of the surface of the heart within the body, or a part of a surface out of the body". Here the "surface out of the body" refers to the measurement surface for magnetic recordings.

Claim 19, line 6: "geometry information of the body" has been changed to "geometry information of the heart within the body and of the torso" as we need both the geometry information of the heart and torso.

Claim 19, last line: "three dimension of the heart" has been changed to "three dimension space of the heart".

Claim 20, line 2: "part of a surface of the body" has been changed to "a part of the surface of the heart within the body, or a part of a surface out of the body". Here the "surface out of the body" refers to the measurement surface for magnetic recordings.

Claim 20, spanning lines 4-5: "geometry information of the body" has been changed to "geometry information of the heart within the body and of the torso" as we need both the geometry information of the heart and torso.

Claim 20, last line: "space has been changed to "volume".

Re: Allowable Subject Matter

3. We have amended Claims 19-20.

4. We have withdrawn Claims 21-22.